

**REMARKS**

Claims 1-18 are pending. No new matter has been added by way of the present submission. For instance, claims 1, 4, 7, 16, 17 and 18 have been amended to define the GaN-based buffer layer as only the three-layered structure  $\text{Al}_y\text{In}_x\text{Ga}_{1-(x+y)}\text{N}/\text{In}_x\text{Ga}_{1-x}\text{N}/\text{GaN}$ , where  $0 < x \leq 1$  and  $0 \leq y \leq 1$ . Support for these amendments is found in the claims as pending. Accordingly, no new matter has been added.

In view of the following remarks, Applicant respectfully requests that the Examiner withdraw all rejections and allow the currently pending claims.

**Issues under 35 U.S.C. §103(a)**

*1. Claims 1 and 7 are non-obvious over Shakuda '492 in view of Tanizawa '234.*

The Examiner has rejected claims 1 and 7 under 35 U.S.C. § 103(a) as being obvious over Shakuda, US 2002/0125492 (hereinafter referred to as Shakuda '492) in view of Tanizawa et al., USP 6,657,234 (hereinafter referred to a Tanizawa '234. Applicants traverse this rejection.

Neither Shakuda '492 nor Tanizawa '234 suggest or disclose the presently claimed three-layered structure  $(\text{Al}_y\text{In}_x\text{Ga}_{1-(x+y)}\text{N}/\text{In}_x\text{Ga}_{1-x}\text{N}/\text{GaN})$ , where  $0 < x \leq 1$  and  $0 \leq y \leq 1$  of the present GaN-based buffer layer. Since the GaN-based buffer layer of claims 1 and 7 (in addition to other claims discussed below) is limited to the present three-layered structure, there exists no *prima facie* case of obviousness. The Examiner is thus requested to withdraw this rejection.

2. *Claims 2, 3, 10 and 11 are non-obvious over Shakuda '492, in view of Tanizawa '234 and Kano '531.*

The Examiner has also rejected claims 2-3 and 10-11 under 35 U.S.C. § 103(a) as being obvious over Shakuda '492 in view of Tanizawa '234 and further in view of Kano et al (US Pub. 2001/0035531) (hereinafter referred to as Kano '531). Applicants respectfully traverse this rejection.

The deficiencies of Shakuda '492 and Tanizawa '234 as they relate to claims 1 and 7 were discussed above. Claims 2 and 3 depend upon claim 1 and claims 10 and 11 depend upon claim 7. As such, these claims are patentable for the same reasons discussed above. The additional disclosure of Kano '531 does not alter or cure these deficiencies. The Examiner is thus requested to withdraw this rejection.

3. *Claims 4-6 are non-obvious over Doverspike '100 in view of Tanizawa '234.*

The Examiner has also rejected claims 4-6 under 35 U.S.C. § 103(a) as being obvious over Doverspike et al., USP 6,459,100 (hereinafter referred to as Doverspike '100) in view of Tanizawa '234. Applicants respectfully traverse this rejection.

Neither Doverspike '100 nor Tanizawa '234 suggest or disclose the presently claimed three-layered structure  $(Al_yIn_xGa_{1-(x+y)}N/In_xGa_{1-x}N/GaN)$ , where  $0 < x \leq 1$  and  $0 \leq y \leq 1$ ) of the present GaN-based buffer layer. Since the GaN-based buffer layer of claim 4, upon which claims 5 and 6 depend, is limited to the present three-layered structure, there exists no *prima facie* case of obviousness. The Examiner is thus requested to withdraw this rejection.

4. *Claims 16 and 18 are non-obvious over Shakuda '492 in view of Tanizawa '234 and Case Law/Legal Precedent.*

The Examiner has also rejected claims 16 and 18 under 35 U.S.C. § 103(a) as being obvious over Shakuda '492 in view of Tanizawa '234, and further in view of Case Law/Legal Precedent. Applicants respectfully traverse this rejection.

As already discussed above, neither Shakuda '492 nor Tanizawa '234 suggest or disclose the presently claimed three-layered structure  $(\text{Al}_y\text{In}_x\text{Ga}_{1-(x+y)}\text{N}/\text{In}_x\text{Ga}_{1-x}\text{N}/\text{GaN})$ , where  $0 < x \leq 1$  and  $0 \leq y \leq 1$ ) of the present GaN-based buffer layer. Since the GaN-based buffer layer of claims 16 and 18 is limited to the present three-layered structure, there exists no *prima facie* case of obviousness. Case Law/Legal Precedent cannot alter this outcome in view of the lack of teachings in the prior art. The Examiner is thus requested to withdraw this rejection.

5. *Claim 17 is non-obvious over Doverspike '100 in view of Tanizawa '234 and Case Law/Legal Precedent.*

The Examiner has rejected claim 17 under 35 U.S.C. § 103(a) as being obvious over Doverspike '100 in view of Tanizawa '234 and further in view of Case Law/Legal Precedent. Applicants respectfully traverse this rejection.

As discussed above, As already discussed above, neither Doverspike '100 nor Tanizawa '234 suggest or disclose the presently claimed three-layered structure  $(\text{Al}_y\text{In}_x\text{Ga}_{1-(x+y)}\text{N}/\text{In}_x\text{Ga}_{1-x}\text{N}/\text{GaN})$ , where  $0 < x \leq 1$  and  $0 \leq y \leq 1$ ) of the present GaN-based buffer layer. Since the GaN-based buffer layer of claim 17 is limited to the present three-layered structure, there exists no *prima facie* case of obviousness. Case Law/Legal Precedent cannot alter this outcome in view of the lack of teachings in the prior art. The Examiner is thus requested to withdraw this rejection.

Obviousness-type Double Patenting

The Examiner has rejected claims 1 and 4-6 on the ground of nonstatutory obviousness-type double patenting as being obvious over claims 1, 3 and 15-16 of USP 7,193,236 (hereinafter the '236 patent). Applicants traverse and submit that a Terminal Disclaimer directed to the '236 patent is attached hereto. Thus, this rejection is moot. Reconsideration and withdrawal thereof are respectfully requested.

Provisional Obviousness-type Double Patenting

The Examiner has provisionally rejected claims 7, 8, 12, 14 and 16-18 as being obvious over claims 35 and 37-39 of copending application No. 10/517,818 (hereinafter the '818 application).

Further, the Examiner has provisionally rejected claims 9, 13, and 15 as being unpatentable over claims 35 and 37-39 of the '818 application in view of Case Law/Legal Precedent.

Applicants traverse and submit that submit that a Terminal Disclaimer directed to the '818 application is attached hereto. Thus, this rejection is moot. Reconsideration and withdrawal thereof are respectfully requested.

If the Examiner has any questions or comments, please contact the undersigned at the offices of Birch, Stewart, Kolasch & Birch, LLP.

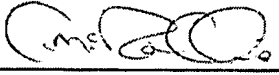
Application No. 10/516,742  
Reply to Office Action of August 24, 2007

Docket No.: 3449-0407PUS1

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

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Respectfully submitted,

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Attachment: Terminal Disclaimer